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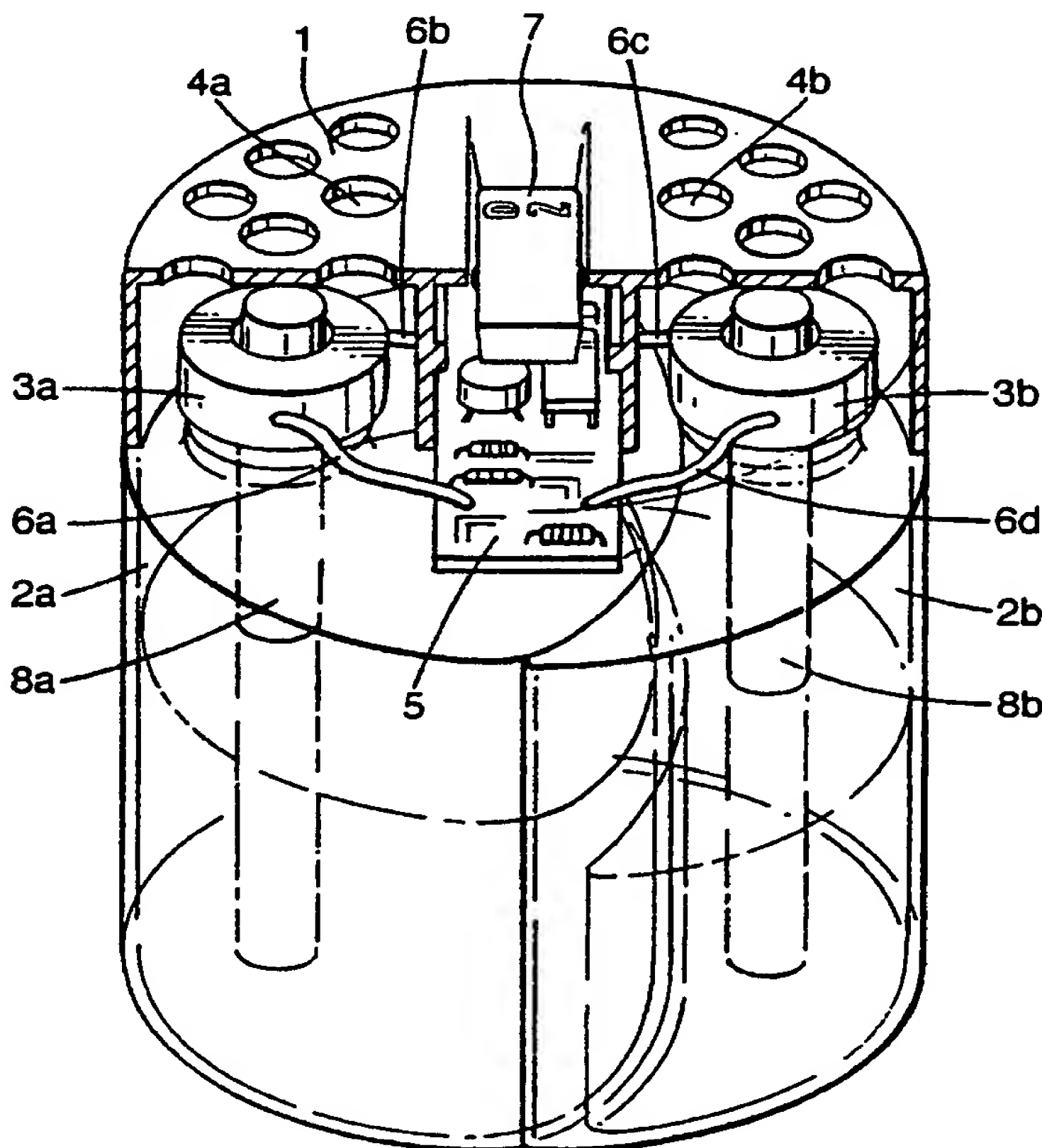
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[Continued on next page]

(54) Title: FRAGRANCE EMITTING DEVICE



(57) Abstract: The present invention relates to  
a method for preventing the habituation of a fra-  
grance composition, which method comprises  
providing to a space which it is desired to fra-  
grance a periodic supply of the fragrance com-  
position.

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## Fragrance Emitting Device

The present invention relates to a method for preventing the habituation of a fragrance composition.

5 It is generally known to use an electrical device to evaporate a perfume and/or fragrance composition into a space, particularly a domestic space e.g. a living room, to provide a pleasant aroma. There are a variety of such devices on sale, for example the Airwick Diffuseur Actif  
10 (RTM) (manufactured by Reckitt & Colman) or the Ambi-Pur (RTM) fragrance diffuser (manufactured by Sara Lee). Generally they consist of a perfume or fragrance source, an electrical heater and a power supply. By the application of heat to the perfume or fragrance source,  
15 there will be a constant supply of the perfume or fragrance to the space in which the device is placed.

The problem with this arrangement is that a person occupying the space will quickly become accustomed to the perfume or fragrance and, after a while, will not  
20 perceive the fragrance strength as being as intense. This is a well-known phenomenon called habituation. A solution to this problem has been sought.

According to a first aspect of the present invention there is provided a method for preventing the habituation  
25 of a fragrance composition, which method comprises providing to a space which it is desired to fragrance two or more fragrance compositions, at least one of which fragrance compositions is provided periodically.

According to the invention there is further provided  
30 a method wherein a continuous supply of a first fragrance composition and a periodic supply of a second fragrance composition are provided to the space which it is desired to fragrance.

35 According to a second aspect of the present invention there is provided a device for supplying two or

more fragrance compositions to a space which it is desired to fragrance the device comprising supply means for periodically supplying at least one of the fragrance compositions to the space.

5 Preferably, the device further comprises second supply means, which second supply means is adapted to continuously supply a first fragrance composition to the space which it is desired to fragrance.

Each fragrance composition is preferably in the form  
10 of a liquid. Suitable solvents for the fragrance components include water, alkyl alcohol e.g. isopropanol or ethanol, an ether (such as monopropylene glycol methyl ether, dipropylene glycol methyl ether and/or tripropylene glycol methyl ether, carbitol or a glycol  
15 (such as propyleneglycol or dipropyleneglycol).

When the fragrance composition is in the form of a liquid, it is generally supplied in (or its source is) a container, e.g. a bottle, filled with the liquid and provided with a wick means. A suitable container is one  
20 made from a water/organic solvent insoluble material which is optionally either a plastics material for example polypropylene, HDPE (high density polyethylene), PET or Borex or, preferably, glass. Suitable wicks are made from natural or synthetic fibrous materials such as  
25 cotton, fibreglass, mineral fibres, cellulose ceramic, graphite or polyester.

Each fragrance composition may additionally comprise a malodour counteractant and/or an insecticide. Preferably it is the first fragrance composition which  
30 may further comprise a malodour counteractant and/or an insecticide.

A suitable fragrance composition for use in the invention comprises one or more fragrant components such as cedarwood, oil, sandalwood oil, bergamot, Bulgarian  
35 rose oil, patchouli, myrrh, clove leaf oil, linalol,

ethyl alcohol, terpineol, menthol, citronellal, and/or phenyl ethyl alcohol.

The fragrance compositions are preferably chosen such that the two or more fragrance compositions contrast with one another or have different notes. This is particularly important when one fragrance composition is supplied continuously and one is supplied periodically to prevent cross habituation. This is a preferred feature because if the second fragrance composition is too similar to the first fragrance composition, the periodic supply of the second fragrance composition will not act to counteract the effects of habituation.

The advantage of the invention is that the problem of habituation is alleviated. In carrying out a preferred embodiment of the method of the invention a continuous supply of a fragrance composition and a periodic supply of at least one further fragrance composition is supplied to a space which it is desired to fragrance. If the fragrance compositions were continuously supplied, and if there was no periodic supply of a fragrance composition then a person present in the space would quickly become accustomed to the fragrance composition or compositions. In other words the person will believe that the strength of the fragrance composition or compositions was decreasing with time. However, when at least one fragrance composition is periodically supplied the perceived decrease in the strength of the fragrance composition which is continuously supplied is halted. In other words, with the continuous supply of a first fragrance and a pulsed supply of a second fragrance the strength of the first fragrance is perceived as stronger than it was before the second fragrance composition was supplied.

A suitable deodorant for use in the present invention is one or more aroma and/or non-aroma chemicals which are known to have an action in reducing the

perception of the intensity of malodours, e.g. unsaturated esters, ketones, aldehydes, and/or a fragrant material e.g. citronellal and/or cedarwood oil (which is known to counteract the perception of tobacco malodour).

5       A suitable insecticide for use in the present invention comprises one or more natural insecticides such as a pyrethroid, nicotinoid, rotenoid and/or one or more synthetic insecticides e.g. tetramethrin(RTM), bioallethrin(RTM), allethrin(RTM), phenthrin, a  
10   dinitrophenol, an organothiocyanate, benzene hexachloride, a polychlorinated cyclic hydrocarbon (e.g. heptachlor(RTM), aldrin(RTM) and/or telodrin(RTM)), and/or an organophosphorous (e.g. tetraethyl pyrophosphate).

15       Each fragrance composition may further comprise an antioxidant such as tocopherol, ascorbyl palmitate, butylated toluene, ascorbic acid, tert-butyl hydroquinone, beta carotene and/or a gallate. In addition each active agent may optionally comprise a UV  
20   stabiliser, such as Uvinol 400.

      In carrying out a preferred embodiment of the present invention, a fragrance composition is generally pulsed from a device which includes heating means which is adapted to supply heat periodically to the composition  
25   which is to be pulsed and thereby vaporise it. When two or more fragrance compositions are to be supplied periodically, the two or more compositions may be pulsed by the use of periodic heating means to the two compositions. Alternatively, if one fragrance  
30   composition is to be supplied continuously then the heating means will supply heat continuously to this composition to vaporise it continuously. The other fragrance composition will be heated only periodically to provide pulsed evaporation.

35       The heating means is optionally either a positive temperature coefficient-type (PTC-type) electrical heater



or a resistance-based electrical heater. It is preferably a PTC-type electrical heater. The heat output of the heating means is preferably suitable to give an operating temperature of from 50 to 120°C, more preferably from 60 to 80°C, most preferably about 70°C.

Each fragrance composition will generally be supplied in a container provided with a wick means. The heating means will then preferably be in the form of a coil or a ring around the wick means. Preferably the heating means is provided with a control which regulates the supply of heat to the fragrance compositions. This is in order that the evaporation rate of the fragrance compositions may be controlled.

Alternatively, a combined fragrance composition may be supplied in a single container with a wick means with the fragrance which is to be pulsed having a higher vaporisation temperature than the fragrance which is to be continuously released. Supply of heat to the wick means will vaporise the first fragrance which is to be supplied continuously. The second fragrance may then be vaporised by periodically increasing the heat supply to the wick means.

The device according to the second aspect of the present invention is preferably an electrical device. The electrical power supply is optionally either in the form of one or more electrical batteries or, preferably, the electrical device is adapted to be connected to an electrical power supply, e.g. a domestic mains socket.

The device is preferably provided with an actuating means, e.g. a switch, to control operation of the device.

The periodic supply of heat to release the fragrance composition is preferably achieved by providing the device and particularly the heating means with a control means. The control means is preferably in the form of an electronic circuit, e.g. a printed circuit board. The control means is preferably an astable electronic timing

circuit for example one based on a 555 integrated circuit or an inverting Schmitt trigger (e.g. a 74LS14 integrated circuit). The control means is preferably arranged such that that power supply is connected to the heating means  
5 for a short period of time at a frequency of from 1 to 5 times an hour. This short period of time is preferably from 15 seconds, more preferably from 30 seconds to, preferably, 15 minutes, more preferably 2, 4, 6, 8 or 10 minutes with appropriate intervals of time therebetween.

10 The present invention will be further described with reference to the accompanying drawings in which:-

Figure 1 illustrates a device for use in the method of the present invention which is adapted to supply a first fragrance continuously and to pulse a second  
15 fragrance;

Figure 2 illustrates diagrammatically an electrical circuitry used in respect of the device of Figure 1; and

Figure 3 illustrates a device for use in the method of the present invention which is adapted to pulse with a  
20 single fragrance.

Referring now to Figure 1, there is shown a device for use in the method of the invention which comprises a housing 1 which is shown in section. Housing 1 is made from a substantially non-deformable heat-resistant  
25 material such as a thermo plastic resin containing a flame retardant agent, e.g. polypropylene, polyethylene and/or an acrylonitrile/ butadiene/styrene copolymer. Housing 1 is adapted to support containers 2a and 2b and heating means 3a and 3b. Heating means 3a and 3b are  
30 annular electrical heaters and are arranged vertically above containers 2a and 2b. Containers 2a and 2b are made from a water/organic solvent insoluble material. Container 2a is filled with a first fragrance composition and container 2b is filled with a second fragrance  
35 composition. Containers 2a and 2b are provided with wick means 8a and 8b which contact the first and second



fragrance compositions, respectively. Wick means 8a and 8b are made from natural or synthetic fibrous materials and extend from the bottom of containers 2a and 2b, substantially coaxially through annular heating means 3a and 3b to a point vertically just above the heating means 3a and 3b. Thus the wick means 8a and 8b cause the fragrance compositions to flow from the containers 2a and 2b to the levels of the heating means 3a and 3b. Housing 1 has holes 4a and 4b which are disposed substantially vertically above containers 2a and 2b, respectively. Holes 4a and 4b allow vapour communication between the wick means 8a and 8b and the outside (ambient environment). Housing 1 is also adapted to support control means 5 and is adapted to allow electrical conductor means 6a, 6b, 6c and 6d to link control means 5 with heating means 3a and 3b. Housing 1 is further adapted to support actuating means 7 and is also adapted to allow actuating means 7 to be electrically connected to the control means 5. Housing 1 is also adapted to provide control means 5 with a source of electrical power (not shown). Actuating means 7 is moveable between a first operating position and a second non-operating position. Control means 5 is arranged so that when the device is in operation (i.e. when circuit 5 is connected to a source of electrical power and actuating means 7 is in the first operating position), electrical power is supplied continuously to heating means 3a and periodically to heating means 3b. The electrical power provided continuously to the heating means 3a cause the heating means 3a to heat the wick means 8a which is saturated with the first fragrance composition so that the fragrance composition vaporises. The vapour of the first fragrance composition produced by heating the wick means 8a is able to escape to the ambient environment through holes 4a.

Referring now to Figure 2, there is shown an electrical circuit 10 suitable for use with the device of Figure 1. The electrical circuit comprises connectors 11a and 11b which allow the electrical circuit to be connected to an electrical power supply, an actuating means 7, heating means 3a and 3b, and a control means 5.

Referring to Figure 3, there is shown a side projection of a device according to the invention which comprises a housing 1 which supports a single container 2a and an actuating means 7. Container 2a is filled with a fragrance composition and is provided with a wick means 8a. In the embodiment of the invention depicted in Figure 3, connecting means 9a, 9b and 9c corresponding to the pins of an electrical plug enable the device to be provided with a source of electrical power. The connecting means 9a, 9b and 9c enable the device to fit into a UK domestic mains socket. Thus connecting means 9a is an earth (ground) pin, connecting means 9b is a neutral pin and connecting means 9c is a live pin. The arrangement of the pins and the shape of the rear section of the housing may be changed according to the local design of mains sockets. The device illustrated in Figure 3 may be used with an electrical circuit similar to that illustrated in Figure 2, but with a single heating means.

The present invention will be further described with reference to the following non-limiting Examples.

#### EXAMPLE 1

30

An experiment was carried out to assess the perceived strength of a continuous core fragrance (ginger flowers) boosted by pulses of another fragrance (pomme) for 6 minutes at 15 minutes intervals. The test was conducted in 28m<sup>3</sup> temperature and humidity controlled booths, (20°C and 55 R/H).

A panel of 13 testers was asked to assess the perceived fragrance strength of the continuous core fragrance over a period of 42 minutes, the assessment being rated every minute according to a preordained scale. The perceived fragrance of the ginger flowers was constant for the duration of the assessment.

### EXAMPLE 2

10 An experiment similar to that described in Example 1 was compared with a control experiment in which the core fragrance (ginger flowers) was supplied to the booths and an experiment in which the core fragrance was applied continuously with pulses of pomme fragrance. Pulsing  
15 with the pomme fragrance for two or six minute at fifteen minute intervals with constant ginger flowers fragrance produced a higher perceived strength than constant ginger flowers alone.

The experiment with six minute pulsing showed a  
20 lesser decline in perceived fragrance than pulsing for two minutes.

### EXAMPLE 3

25 Following the general protocol of Example 1, an experiment was carried out to assess the perceived strength of a single fragrance (freesia and magnolia) pulsed for two minutes with a rest period of two minutes between the end of one pulse and the beginning of the  
30 next. The assessment was carried out in the manner as described in Example 1 for a total of 46 minutes.

The pulsing maintained the perceived fragrance strength at a constant level throughout the duration of the assessment.

35

## CLAIMS:

1. A method for preventing the habituation of a fragrance composition, which method comprises providing  
5 to a space which it is desired to fragrance, two or more fragrance compositions at least one of which fragrances is supplied periodically.

2. A method as claimed in claim 1 wherein a  
10 continuous supply of a first fragrance composition and periodic supply of a second fragrance composition are provided.

3. A method as claimed in any one of claim 1 or  
15 claim 2 wherein the periodic supply of the fragrance composition or compositions is at a frequency of from 1 to 5 per hour.

4. A method as claimed in any one of the preceding  
20 claims wherein the pulsing time for the periodic supply is 2, 4, 5, 6, 8 or 10 minutes with intervals between the pulses of the same or different times.

5. A method as claimed in any one of the preceding  
25 claims wherein the periodic supply of the fragrance composition to the space is provided by periodically heating the composition in order to vaporise it.

6. A method as claimed in any one of the preceding  
30 claims wherein the fragrance composition or fragrance compositions optionally comprises a deodorant and/or an insecticidal compound.

7. A method as claimed in any one of the preceding claims wherein the fragrance composition or fragrance compositions is/are in the form of a liquid.

5 8. A method as claimed in claim 7 wherein each fragrance composition is supplied in a container provided with wick means.

9. A method as claimed in claim 8 wherein a  
10 heating means surrounds the wick means of each container.

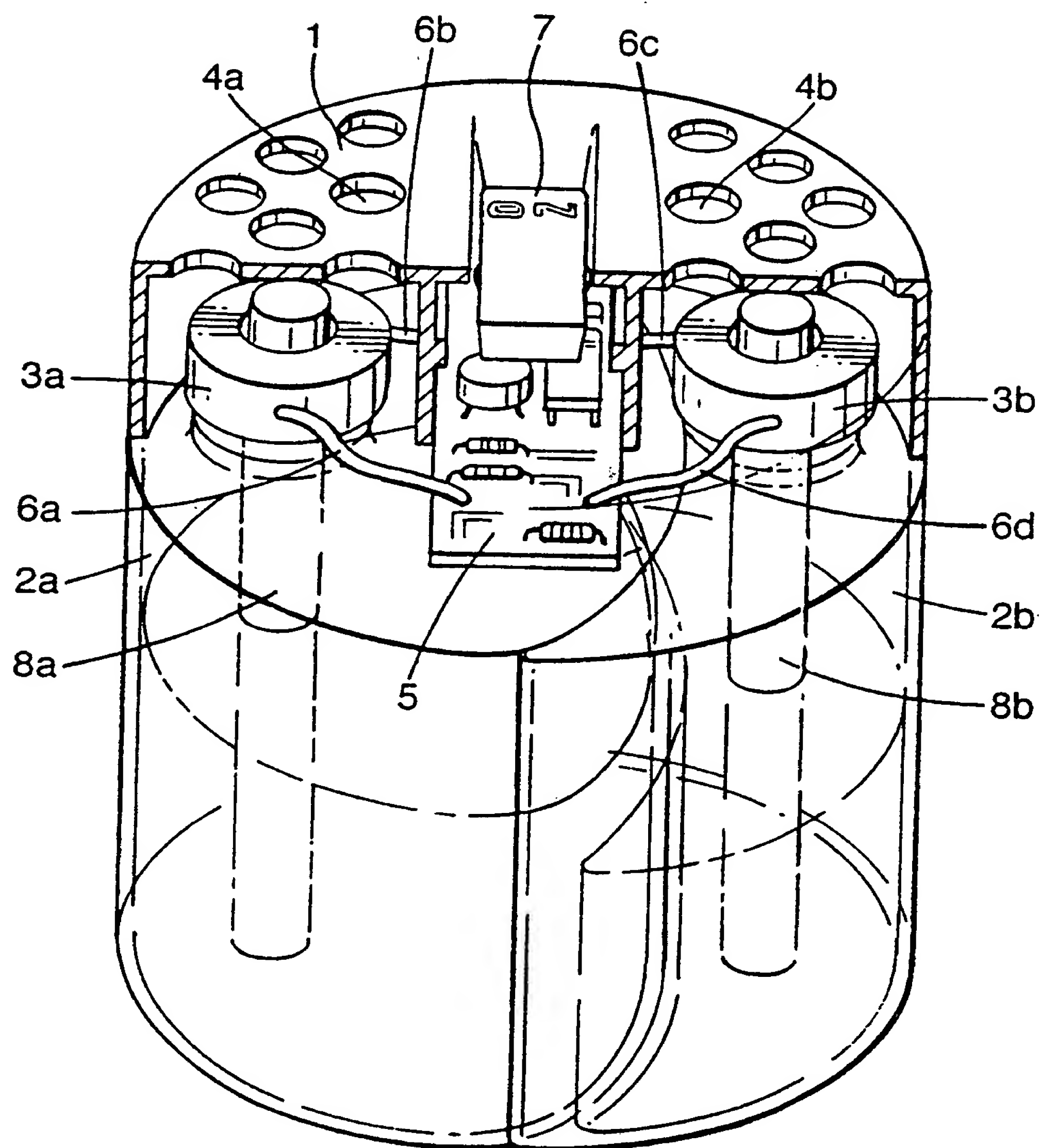
10. A method as claimed in claim 9 wherein the heating means is/are operated electrically.

15 11. A device for preventing the habituation of a fragrance composition, the device being adapted to supply two or more fragrance compositions to a space which it is desired to fragrance, the device comprising first supply means for periodically supplying at least one of the  
20 fragrance compositions to the space.

12. A method substantially as herein before described with reference to the accompanying drawings.

25 13. A device substantially as herein before described with reference to the accompanying drawings.

Fig.1.





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Fig.2.

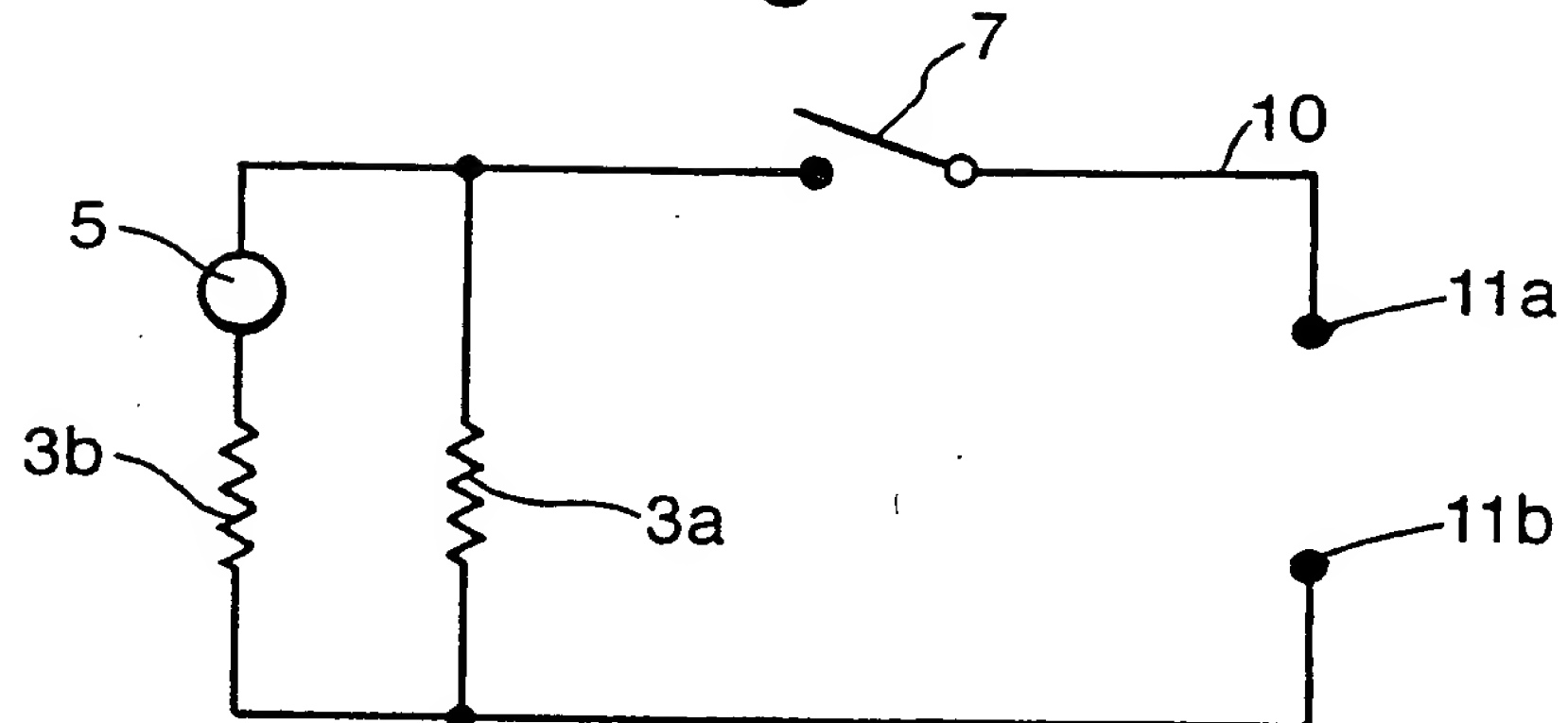
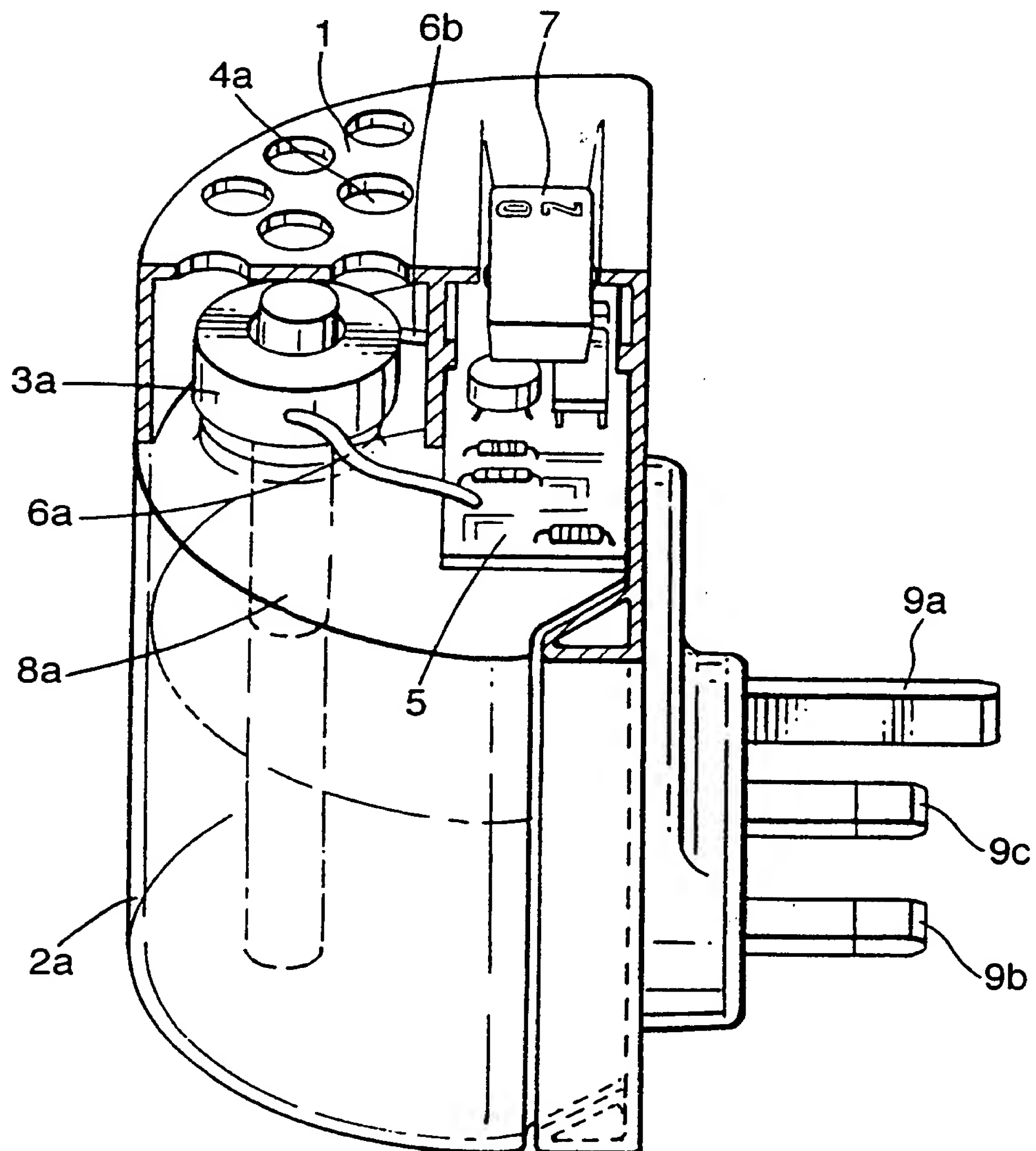


Fig.3.



SUBSTITUTE SHEET (RULE 26)

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 00/02671

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61L9/02 A61L9/03

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61L A01M A45D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 911 041 A (FALP SRL) 28 April 1999 (1999-04-28) paragraph '0045! claims ---	1-13
X	DATABASE WPI Section Ch, Week 199712 Derwent Publications Ltd., London, GB; Class D22, AN 1997-126709 XP002151503 & JP 09 010292 A (CASIO COMPUTER CO LTD), 14 January 1997 (1997-01-14) abstract --- -/--	1,2,5-7, 10-13

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

30 October 2000

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10/11/2000

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/02671

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN  vol. 1999, no. 04,  30 April 1999 (1999-04-30)  &amp; JP 11 000391 A (MATSUSHITA ELECTRIC IND  CO LTD), 6 January 1999 (1999-01-06)  abstract.</p> <p>-----</p>	1,5-13

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/02671

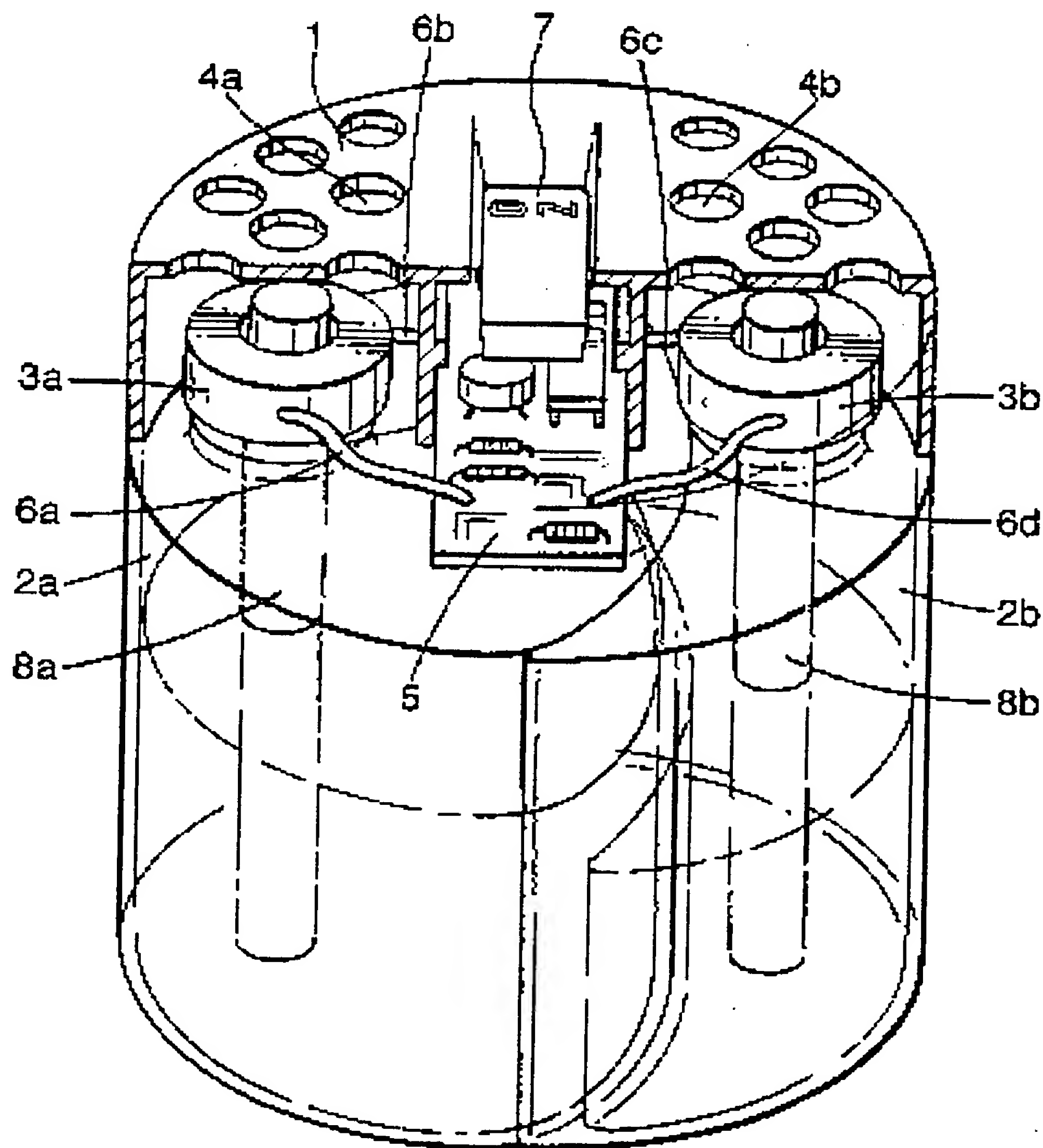
Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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EP 0911041 A	28-04-1999	IT 1295645 B	24-05-1999
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JP 9010292 A	14-01-1997	NONE	
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JP 11000391 A	06-01-1999	NONE	
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Fig. 1.



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Fig.2.

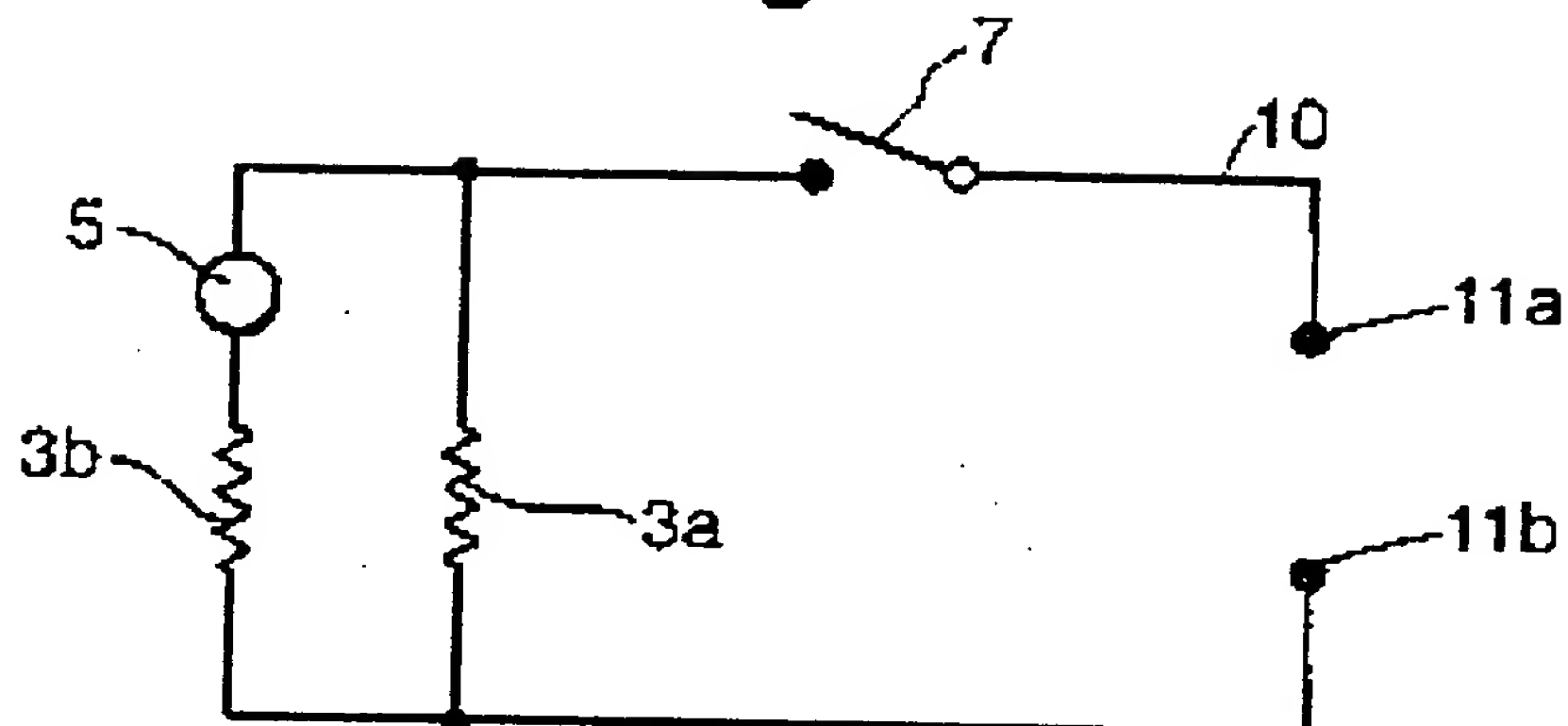


Fig.3.

